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**VIRGINIA**

**WILDLIFE**



MARCH  
1950

Bicolor Time at Beaumont, pages 14-15

Volume XI  
Number 3





W. H. Mullins

## *Spirit of Youth*

A youngster shoulders a bunch of bicolor lespedeza which will be used for wildlife habitat improvement.

# VIRGINIA WILDLIFE

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COMMONWEALTH OF VIRGINIA

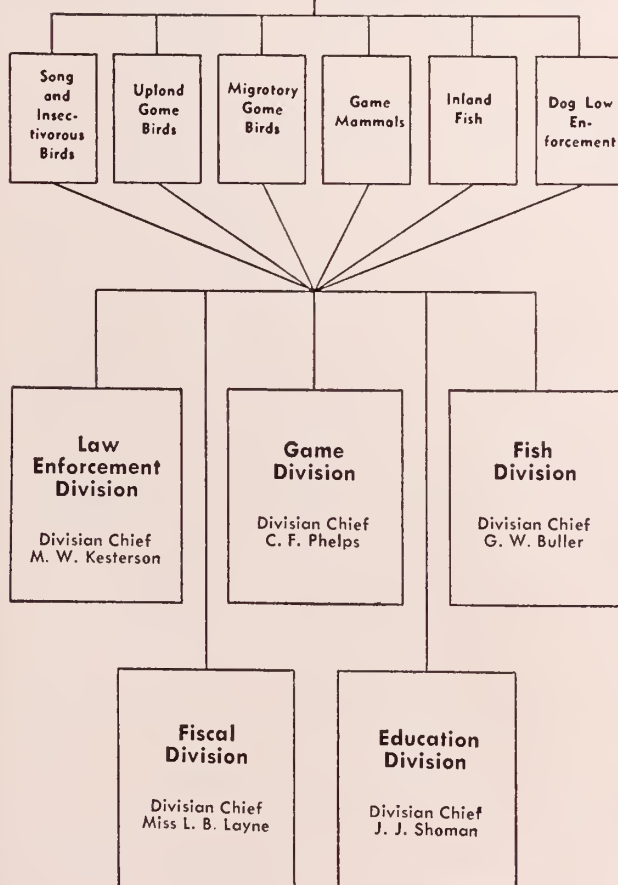


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## Cover Photo

Restless waterfowl test their wings for the spring migration. Photo by Allan D. Cruickshank from National Audubon Society.

VIRGINIA WILDLIFE gratefully receives for consideration all news items, articles, photographs, sketches and other materials which deal with the use, management and study of Virginia's interrelated, renewable natural resources:

WILDLIFE  
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FORESTS

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J. J. Shomon, Editor

W. H. Mullins, Associate Editor



# Our Official

## State Bird



ON JANUARY 25, 1950, the General Assembly of Virginia adopted a resolution naming the Cardinal (*Cardinalis cardinalis cardinalis Linnaeus*) as the official state bird of the Commonwealth. While there may be some disagreement among bird lovers as to the appropriateness of the selection, it must be conceded that the "redbird" is a favorite to most Virginians and is popular throughout the South.

The cardinal is a year-round resident and is one of our most easily recognized birds. His vermilion-scarlet plumage makes him a favorite with the children. He is a friend to the gardener, an expert songster, neighborly, smart, and a good parent. In the olden days in the South he was used as a cage bird, but now state and federal laws give him complete protection.

Credit must be given to those who have labored long and arduously to give Virginia an official bird. The choice seems wise to us, for hardly could we have picked a more beneficial bird or a more attractive one.

## Governor Battle Names Wildlife Week

Wildlife Restoration Week in Virginia will fall on March 19-25 this year—thanks to the kind efforts of our new governor, his excellency JOHN STEWART BATTLE. (See Governor's statement on inside back cover of this issue.)

Governor Battle urges all citizens to go "all out" for wildlife during this week. "I urge every citizen in the Commonwealth," he says, "to take an active part in conservation work aimed at the restoration of this wonderful resource."

This is encouraging news indeed, and we are with the Governor 100 percent. In this connection, we of VIRGINIA WILDLIFE shall be glad to assist any group or individual to help promote wildlife conservation activities during this week. Simply drop us a letter or postal card asking for the necessary information.

Furthermore, we strongly recommend the purchase of Wildlife Conservation Stamps, now in their thirteenth annual series. Proceeds from the sale of these stamps go for education and conservation. For full particulars, write the National Wildlife Federation, Washington, D. C., or us.

## Fifteenth North American Wildlife Conference

This month, once again, will see the holding of another North American Wildlife Conference. Game experts from all over North America will converge on San Francisco's Hotel Fairmont where the conference will be held on March 6-9.

This is one of the most interesting and inspiring conferences held in America each year, and is well worth the time and effort to attend. It is a gathering of wildlife experts, conservationists, educators, government officials, students, and people from all walks of life who have a common goal—that of conserving and managing our wildlife and other natural resources for the best interests of the American people.

When a group of well informed, intelligent individuals get together with a mutual interest in mind, some good results usually come out of it. The North American Wildlife Conference certainly substantiates this premise. Problems ranging from those on a national scale down to the best management of farm game are ironed out by the wildlife experts and conservationists. Of course, as is usually the case, some ideas set forth are good while a few may not be so sound. It only remains for the delegates to assimilate those which they feel to be worthwhile.

Those who attend the conference from state organizations never fail to profit in that they return to their posts and apply some of the sound principles of wildlife resource management which have been tried and proved by other conservationists. It is always helpful to read about a principle or idea, but it is far more satisfactory to discuss an issue in person.

Every sportsman and conservationist should recognize that the North American Wildlife Conference is a gathering from all over the nation of individuals who are representing the people and their best interests, in terms of natural resource management. We should follow the results of the proceedings just like we observe those of the Congress of the United States.

Last year's meeting was held in Washington, D. C., and proved to be the biggest ever held in North America. Officials are hopeful that this year's location on the West Coast will not be a deterrent to a large attendance.

This magazine will, as usual, carry a summarized account of the conference as soon as it is prepared.

## Essay Contest Over

Thousands of wildlife conservation essays are pouring into Essay Contest Headquarters as this issue of VIRGINIA WILDLIFE goes to press. The big, \$1,000 essay contest in Virginia public schools closed on February 28. Lucky winners will be announced shortly.



Ralph P. Daniels

Thousands of waterfowl find a haven at the Back Bay National Wildlife Refuge. Here, food and protection enables them to make the long trip back to the nesting grounds.

## BACK BAY — Important Link In Waterfowl Refuge System

By ALBERT M. DAY \*

**T**HE GREAT IMPORTANCE of the Back Bay National Wildlife Refuge, which lies north of Knott's Island on the southeastern Atlantic coast of Virginia, is something that needs to be re-emphasized from time to time. It is an integral part of an important feeding area that serves to support the enormous flocks of ducks and geese that winter along the middle and southern Atlantic coast. Because of scientific management, such areas as Back Bay and neighboring Pea Island refuges are made many times as productive of natural foods needed by waterfowl. Without these refuges and nearby food producing areas the great flocks of waterfowl now able to winter along the coast would be reduced to a fraction of their present populations.

A duck hunter's paradise since colonial days, the 11,000 acres of marsh land and open water at Back Bay are managed by the U. S. Fish and Wildlife Service. The effectiveness of this management is greatly

increased by the cooperation of the Virginia Commission of Game and Inland Fisheries, which has closed adjacent areas to hunting and in many ways assists law enforcement and area management.

Although a great variety of ducks and shore birds use the Back Bay area, it is especially known as a concentration point for Canada geese, greater snow geese, and whistling swans. A large proportion of the total existing populations of these latter two species stop at Back Bay to spend at least part of the winter.

In the fall migration, snow geese usually make their first stop on the Atlantic coast near Fortescue, New Jersey, and range from there down the coast making stops at Bombay Hook, Delaware, Chincoteague and Back Bay in Virginia, and Pea Island, North Carolina. All of these places are national wildlife refuges.

The movements of these birds down the coast, as well as those back and forth between the refuges, during the fall and winter months are governed by weather conditions and the food supply. When cold

\* Director, of the Fish and Wildlife Service, Department of Interior.





W. H. Mullins

An air view (top) shows refuge headquarters and part of the 11,000 acres under the jurisdiction of the Fish and Wildlife Service. Jack Perkins, refuge manager, (insert) surveys the marsh from tower (left).

weather or declining food supplies push them, they move from the region around Back Bay on down the Currituck Sound area to their next stop—Pea Island.

The greater snow geese are peculiar in their feeding habits. They depend almost exclusively on the roots of three-square bulrush and saltmarsh cordgrass. In satisfying their food requirements, the geese denude hundreds of acres of marsh annually. In fact, they are so thorough in their search for roots that the feeding ground is literally uprooted and several seasons may elapse before the vegetation becomes re-established.

Feeding activities of the snow geese have a direct bearing on utilization of coastal marshes by the Canada geese. The latter also feed to a great extent on the roots of the three-square bulrush and, consequently, often frequent the same areas used by the snow geese. When the food supply is exhausted, both geese are forced to move to new locations. Because of the complete utilization of the local food supply, there are very pronounced seasonal variations and concentrations of snow and Canada geese along the middle Atlantic coast.

Thus, if a feeding ground at Back Bay is exhausted this winter, the small number of geese that do stop next season will stay for only short intervals. They will make more use of Pea Island to the southward, and the other feeding areas north of Back Bay when the weather permits. When the feeding grounds to the north are frozen over, the geese are forced to move south, but there is considerable shifting back and forth with changes in the weather.

The Pea Island refuge is the terminus for several

thousand Canada geese. The breeding grounds in the far north give rise to flocks which, for the most part, migrate individually as groups and use separate wintering grounds. For this reason a goose colony could be eliminated by a combination of excessive hunting on the wintering grounds, the loss of important feeding areas, and a succession of poor breeding seasons in the breeding grounds in the far north.

Consequently, it is important to assure the preservation of residual brood stock of Canada geese by regulation of hunting, the establishment of rest areas or refuges where the geese can get a respite from the gunner, and the increase of available food supplies by intelligent management of areas suitable for waterfowl. In addition, since the feeding habits and feeding grounds of the snow geese are so specific, special attention was directed toward the acquisition and management of lands that would perpetuate this species.

While there are thousands of acres of waterfowl food-plants along the Atlantic coast, there are relatively few locations where conditions are suitable for the use of such vegetation by the snow geese. Since these feeding grounds acceptable to the snow geese are limited in acreage and restricted to a few sites along the coast, one means of creating additional feeding grounds for them, as well as for the Canada geese, is to burn off the old growth of marsh grass. This makes it possible for the geese to puddle out the roots they use for food. For this reason, a definite control program of burning marsh lands is followed on portions of Back Bay and Pea Island refuges (and other refuge areas along the coast) so as to supply essential green



browse and make more readily available the plant roots.

The quantity of food available for ducks and geese is also determined in large part by the water conditions. Many years ago these conditions varied according to the moods of nature. During violent storms, salt water from the sea would wash over the barrier beaches into the fresh water "rain" pools and relatively fresh waters of the bays and marshes. Such important food plants as wild celery and redhead grass were stunted or killed by the influx of this salt water.

In order to stabilize the food-producing potential of the Back Bay area, sand fences were made on the beaches with the aid of CCC boys. These sand fences helped control beach erosion and protect the waterfowl food plants in the marshes from being damaged by salt water intrusion. The protection of fresh water pools by the construction of sand fences is also a management practice at Pea Island—the "partner" of Back Bay in wintering such large numbers of ducks, geese, and swans.

These sand fences, which line so many miles of beach at Back Bay and Pea Island, were made by building fences of wood, brush and marsh vegetation. After the windblown sand had filled in around the first fences, other fences were built on top of the dune. In that way, "dikes" up to 20 feet high were built. These sand fences were then planted to vegetation that would bind the sand particles and help reduce damage by wind and wave action.

The surface drainage water supply on Pea Island

**Wildfowl are trapped on the refuge by using baited traps such as the one shown at bottom. Perkins bands and releases all trapped birds (right) to gain data essential to waterfowl management.**

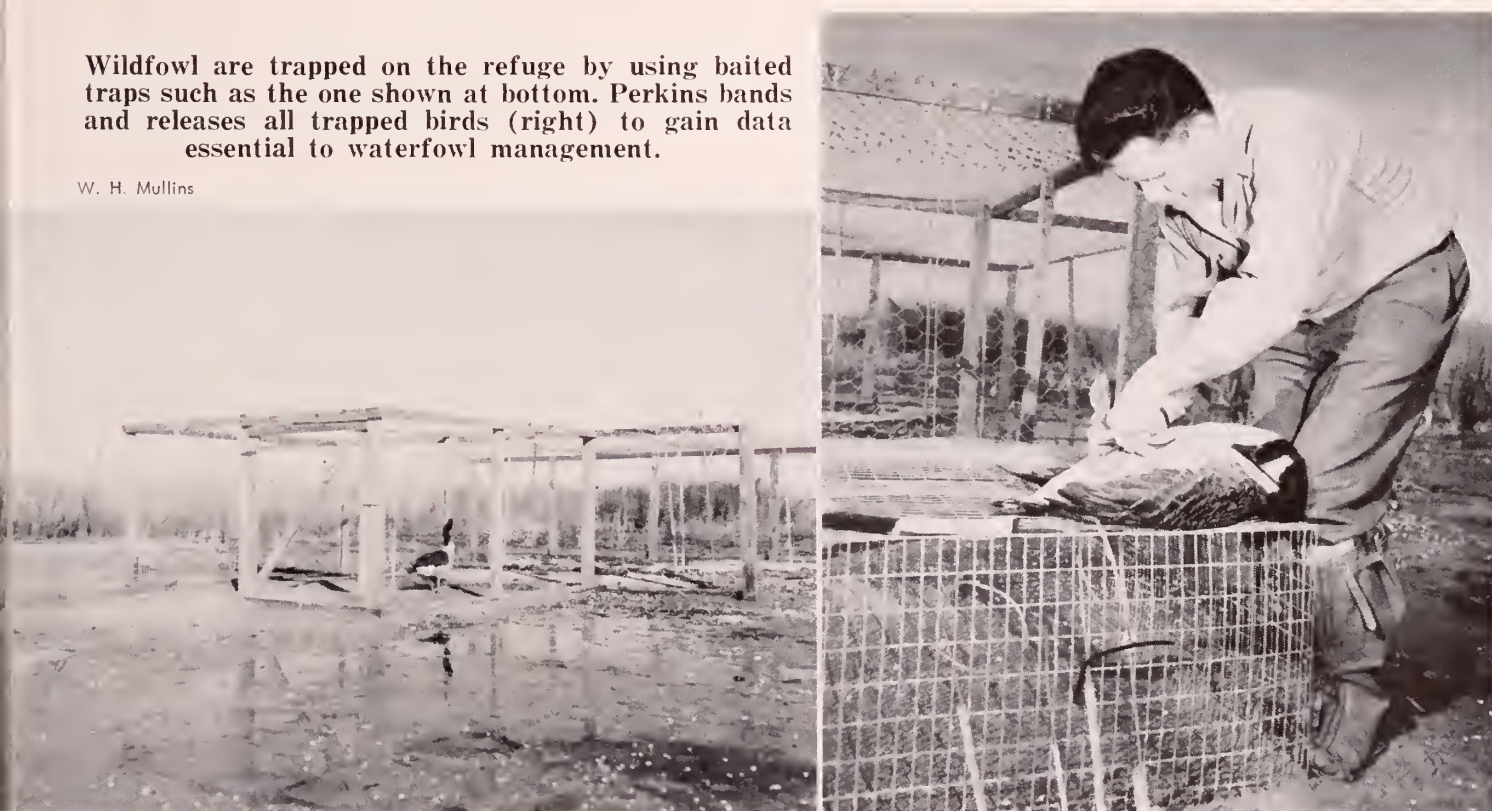
W. H. Mullins

beach has made it possible for us to make small fresh-water impoundments. Of course, the water level to be attained is in direct proportion to the run-off area and the water level will differ considerably with seasonal variations in rainfall. Thus, during the summer months when rainfall is light, the level in such impoundments drops rapidly. Fortunately, such variations in water levels do not seriously interfere with the natural growth of marsh and aquatic plants sought by ducks and geese.

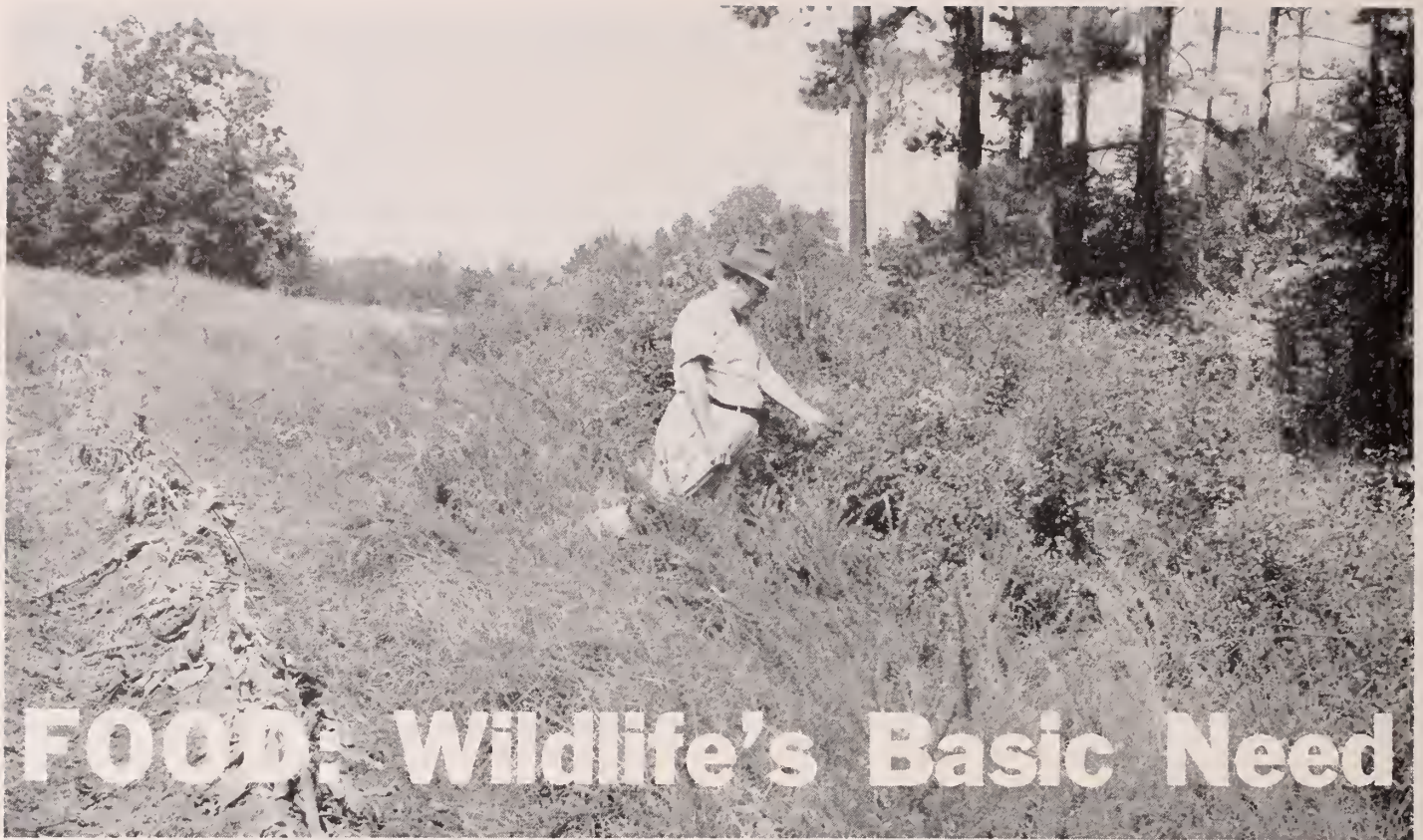
Many of the most important waterfowl food plants produce seeds and winter buds from which new growths originate upon the return of favorable water levels. Along the coast, many of the water plants are dormant during the hot summer weather, but grow actively in the spring and early summer and again during later summer and fall. Thus, low water levels during the summer do not mean that food will be unavailable for the ducks at the time of the fall migration. If the water level is favorable during the late summer, a good supply of seeds and tubers will be present when the ducks arrive. The two ponds, totaling approximately 750 acres, on the Pea Island refuge not only furnish foods for waterfowl during the winter season, but are used as nesting grounds by black ducks, gadwalls, and occasionally blue winged teal.

Persons traveling from Oregon inlet to Cape Hatteras often see on the Pea Island refuge and vicinity geese which fail to return northward with the main flock. During the summer months the geese can be approached without difficulty. To one not familiar

(Continued on page 24)







SCS photo by Verne E. Davison

By **CHESTER F. PHELPS**  
*Chief, Division of Game*

*The time to provide for our wildlife is now  
not next winter. Then may be too late.*

**T**HE NEXT TIME you take a stroll through your favorite "back forty" take a good look around and see what Nature and man have provided for wildlife. Chances are you will see plenty of broom-sedge in fallow fields, patches of young pines and extensive clumps of grass in pastures, and forests of mixed hardwoods and conifers. Food a-plenty for wildlife, you may say—but is it? Better take another, closer look.

Aldo Leopold, the late great wildlife scientist, and father of what is commonly accepted as modern game management, viewed our present-day wildlife crisis as largely a food problem. He classed food at the head of the list of so-called "welfare factors" which can be tied in closely to production. He made strong the point that deficiencies in food tend to decrease the breeding rate and to weaken defense, particularly against the major decimating factors: hunting, predators, starvation, disease and parasites, and accidents.

Verne Davison, distinguished biologist for the Soil Conservation Service, in his new and remarkable book "Bobwhites on the Rise" has this to say about quail:

"Food is the all-important element of production. Upon food depends the vitality of the covey, its energy to feed, to escape, and to withstand the hardships of life.

"It is food that provides the chemical processes of heat to combat the cold rains, snows, and low temperatures of winter. Food gives health and strength to overcome disease and the life-sucking drain of red-bugs, lice, and internal parasites. Eggs in the nest must be produced by food, the chicks grow to maturity only as they find enough food in their daily range.

"Food, never forget, is the most vital element . . ."

So you see, it is easy to get a false impression by what appears on the surface. We may see what looks like food in abundance—food for all species of game, everywhere, at all seasons. But upon closer examination we can easily discover that this is not so.

Food, to be classified as abundant for wildlife, should be available in all seasons, for wildlife must eat 365 days a year, even as you or I. Just a few days out of the entire year with no food will make an otherwise suitable land unfit for wildlife. If man with



his ingenious wisdom cannot do without food during critical periods, how then can we expect wildlife to do so? It is the few days or few weeks without food that does the damage and starts whipping the major decimating factors into action.

As an illustration of the importance of food for wildlife, let us take a specific example. A large farm may have enough food for 500 quail for 50 weeks of the year, but the other two weeks may see the ground bare and barren, the seeds and other foods destroyed or covered by snow. If there is one small corner where only 10 birds may find suitable food during this two-week period, then these 10 birds may be carried through the year. Many more may be produced and live without danger during the 50 weeks when food is plentiful, but the two weeks of scarcity will inevitably cut the population back to the 10 birds which can find sustenance during this most unfavorable period of the entire year.



#### When to Plant

In Virginia the most critical time for wildlife usually occurs in the late winter, therefore it behooves all of us who are interested in greater

wildlife populations to direct our efforts toward providing food during these highly critical weeks. The time to prepare for this emergency is not after the snows have covered the ground, but in early spring when it is more expedient to provide natural food and cover in abundance by careful selection of wildlife plants.

During the late spring and summer and the early fall we all know that food for wildlife is usually quite abundant. Fruits, seeds, green forage, insects and other foods are plentiful. Then when the emergency period arrives and the sportsmen and farmers see their game freezing or starving or eaten by predators, they are unable to do much to save the stock to be harvested the following fall. True, some emergency winter feeding can be resorted to and it may help in small instances, but the expense is relatively great, and the majority of snow-bound birds and animals are never reached.

(Continued on page 12)

WHAT TO PLANT:	HOW TO PLANT:	WHEN TO PLANT:	FOR WHAT SPECIES OF GAME:
Bicolor Lespedeza (Plants)	Keep plants heeled in until used. Plant in well prepared land in rows 3 feet apart, 2 feet in row, with 5 rows to a patch and a minimum of 1,000 plants. Plant with hand tools or by plowing a furrow, placing plants in furrow and covering roots by turning another furrow. Moderate fertilization and cultivation is helpful the first year.	Before May 1	Quail, Rabbits, Song and Insectivorous Birds.
Bicolor Lespedeza (Seed)	Prepare seed bed well. Sow in rows if possible, spacing and size of patch as above. Seed about 20 seed per foot. Cover lightly. Fertilize after plants begin to grow. Cultivate first year.	Before May 30	Quail, Rabbits, Song and Insectivorous Birds.
Serecia Lespedeza	Best used as cover next to bicolor lespedeza planted as field border. Broadcast on well prepared land at rate of 20 pounds per acre. Fertilize with complete grain fertilizer 300 to 500 pounds per acre. Mulch on badly eroded areas.	April 15 to May 30th	Rabbits, and as cover for quail.
Combine Milo	Sow on well-prepared land in $\frac{1}{8}$ -acre patches. Best result by sowing in rows. Planted with grain drill, 18 inches apart (15 to 20 pounds per acre), by hand or with single row drill, 36 inches apart (5 to 8 pounds per acre.) Fertilize with a grain fertilizer 300 to 500 pounds per acre.	Eastern Virginia not later than July 1. Western Virginia not later than June 1.	Quail, Rabbits, Wild Turkey.
Game Bird Mixture	Sow broadcast at rate of 25 pounds per acre. Patch size and fertilizer same as for combine milo.	May 15 to July 15.	Quail, Rabbits, Wild Turkey.
Multiflora Rose	Clean off proposed fence line and disc thoroughly. Fertilize at rate of 300 pounds per acre. Plow, making a bed 6 to 8 feet wide. Let settle. Upon arrival of plants, cut a bed furrow down center of bed, place plants in furrow one foot apart, and cover roots with another furrow as described in planting bicolor lespedeza plants. Pack dirt around roots by running tractor wheel along each side of planted strip. Mulch plants or cultivate the first year.	As soon as soil can be worked.	Cover for Rabbits, Quail, Song and Insectivorous Birds.
Orchard Grass	Sow on well-prepared seed bed at rate of 15 to 20 pounds per acre. Fertilize at the rate of 300 to 400 pounds per acre (4-16-4). For wildlife use, plant in open areas in forest or woods.	Fall or Early Spring.	Deer, Wild Turkey, Rabbits.



# Molluscan “Fortresses” of Virginia

By PAUL R. BURCH

THE LAND AND FRESH waters of Virginia harbor thousands of organisms which are veritable fortresses of the animal kingdom. Every snail, periwinkle and mussel has built around itself a sort of movable pill box or shell which is carried on its back and into which it can retreat at a moment's notice.

These members of the Phylum *Mollusca* are found throughout the State in the streams, lakes, ponds and almost anywhere on terra firma. The average person is probably more acquainted with certain of the marine mollusks such as the oyster. The land and fresh water species often go unnoticed, except when large numbers of snails develop in certain ponds, or when "periwinkles" dot the rocks of swiftly flowing streams or when mussels congregate in the shallow, clear waters of some creek or river.

Unseen are the water snails on plants along every stream and around every pond. And a close observer will find little pill clams in the mud of the same creeks and ponds. Add to these the several kinds of land snails found under nearly every log, rock pile, and beneath the layers of leaves at the bottom of ravines. One may then realize that the total molluscan population of Virginia is enormous. In fact, only the state of Wisconsin has reported more species of

mollusks than the author has found within the borders of the Commonwealth.

That part of the molluscan fauna which inhabits the land and inland waters of our State is divided into two classes: (1) *Gastropoda* or snails and slugs and (2) *Pelecypoda* or mussels and pill clams. The snails are further divided into two orders: (a) Gill-breathers or "periwinkles" and (b) Lung-breathers or pulmonates. The whole group is made up of 23 families. The gill-breathers number 35 species, lung-breathers 190, mussels 38 and pill clams 12.

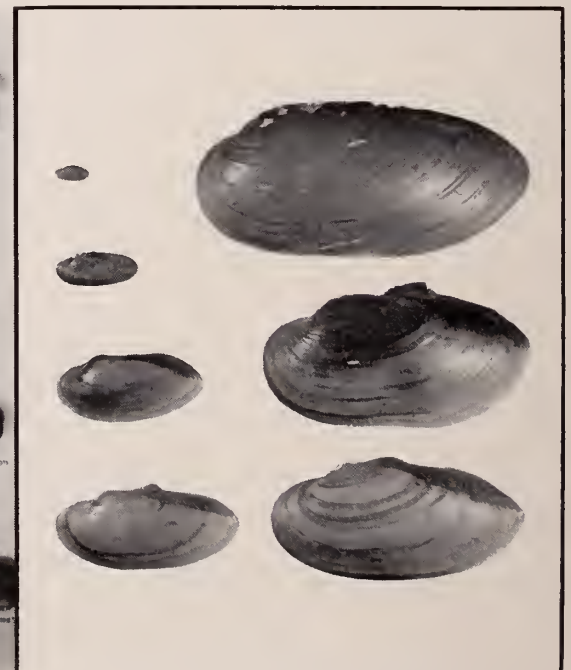
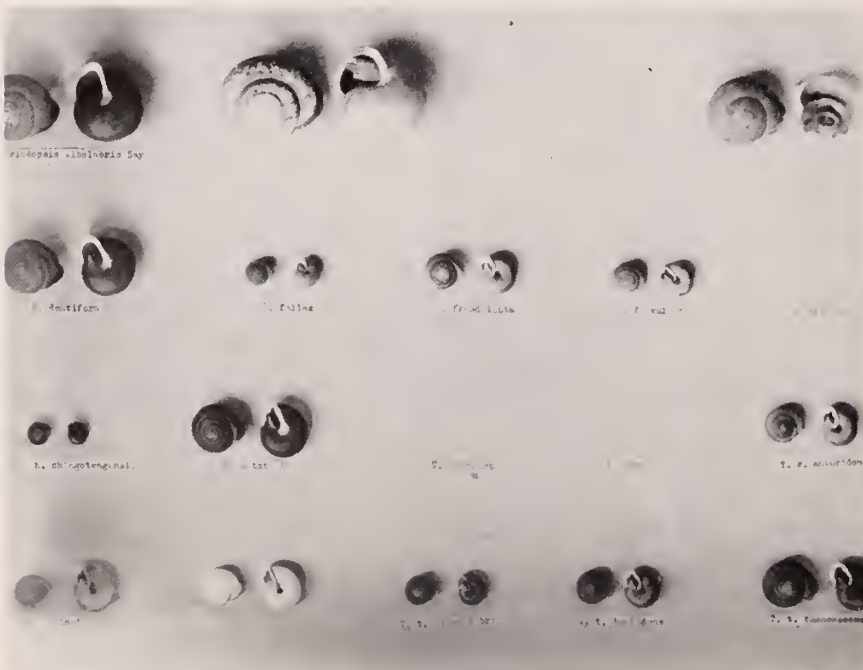
Like other animals, mollusks have digestive, respiratory, nervous, excretory, reproductive, muscular and blood systems. The shell is secreted and lined by a skin-like covering. A snail's organ of locomotion is its foot which actually lays down a roadway of mucus over which the little animal crawls by a wave-like or peristaltic motion. The head bears two pairs of tentacles or "feelers" with an eye in each of the longer ones. A hole on the right side admits air to the single lung. The mouth on the underside of the head contains a rasping tongue covered with thousands of tiny, hard "teeth" which are used to scrape food from plants and animals when the little animal is hungry.

Most snails are hermaphroditic, i.e., have both male and female reproductive glands and organs. A few

Left—Part of collection of snails found in Virginia by the author. Right—A series of fresh water mussel shells showing various ages.

Photo courtesy P. R. Burch

U. S. Fish and Wildlife Service





species give birth to living young but eggs are more common. Even in the egg or in the mother's body each embryo is covered with a shell. Eggs are deposited in masses, sometimes in jelly, and hatch within a few days or weeks without any further care from the parents. The young snails which mature the following season can look forward to about two years of life.

Mussels differ from snails in that they lack a head and tentacles and breathe through gills. However, they do have a sense organ around the mouth and a balancing organ in the foot. Sexes are separate and the gills of the female serve as a marsupium or pouch in which the young develop into larvae called glochidia. These larvae attach themselves to the gills of certain fish where they continue development for weeks or months as "black heads" and may be carried great distances before dropping off to become adults. They then take up a sedentary existence for the balance of their lives.

Land and fresh water mollusks have very little economic importance except that they furnish food for many of our game fishes and migratory fowl. A bad feature lies in the fact that they harbor the young of certain worms which parasitize domestic animals and sometimes man.

Although land snails in Virginia are not large enough nor in sufficient numbers to constitute a source of human food, many birds and animals find them palatable. Thus they furnish another link in the balance of Nature. Birds, salamanders, mice, moles, shrews, and squirrels often dine on the shelled delicacies. The aquatic members of the snail family constitute a food for fish and birds. Approximately 20

**A slug makes its way slowly but surely up an oak tree trunk.**

Bill Matthews



G. D. Burch

**The author, on one of his field trips in search of additional species of mollusks.**

percent of all fresh water fish feed on them. F. C. Baker in 1916 stated that "more than 40 species of mollusks are now known to be used as food by our common and game fish."

Mussels serve as food for muskrat, mink, raccoon and some birds. The Indians ate them and left the shells in such quantities that we call them "kitchen-middens" but civilized man does not seem to have acquired a taste for them. (The author and some of his friends have found them very good in the form of chowder.) Pill clams furnish a large part of the food either directly or indirectly for such fish as black bass, common sucker, walleye pike and red horse in some vicinities.

Land snails may be found almost anywhere, even in places which seem too dry to support any life at all. Forested bluffs along rivers having outcrops of limestone are the favored habitats. They are found from the tops of our highest mountains (Mount Rogers, 5,719 feet elevation) to Tidewater and Eastern Shore. Most snails are associated with distinctive environments and occur in greater numbers in forests of beech, poplar and buckeye. However, it seems that the presence or absence of shelter, moisture and limestone are the important limiting factors. If these conditions prevail and civilization has not encroached too much they are usually found in great abundance.

Pond snails are found from Tidewater to nearly 4,000 feet elevation, even in cold lakes. Neither operculate snails (periwinkles) nor mussels abound above 2,000 feet. But pill clams live in the mud of high springs like that furnishing water for Mountain



Lake Biological Station in Giles County at an elevation of 4,000 feet. Certain introduced species live in gardens, in hedgerows, and under almost any object affording protection from light, heat, drying and enemies. From these hiding places they raid garden, orchard and cellar in search of food. Experiments have shown that the striped garden slug can detect a rotten apple fifty yards away.

Fungi are the principal food of Virginia snails, but John Taylor in "Mollusca of the British Isles," 1916, discusses the food habits of snails with reference to over 200 kinds of plants and animals and states that they eat a great variety. They even feed on the poisonous mushroom, *Russula emetica*. Mussels eat almost any organic material which enters its shell, even sewage in small quantities. But sewage in considerable amounts will kill mussels.

Over 150 species of mollusks have been collected

within 15 miles of Radford, an area which has within it headwaters of both the James and Roanoke Rivers, and a long stretch of New River. Within one mile of the city of Radford over 90 species have been collected—a near record for the United States. In all of Tidewater Virginia less than 50 species have been reported. This area is relatively drier and has been under cultivation for a long time and the water is mostly brackish. During a recent collecting trip through Caroline and Westmoreland Counties, the author could find no more than 20 species.

In all, Dr. J. P. E. Morrison, Associate Curator of Mollusks, U. S. National Museum, and the author have collected over 275 species in the State. This list should become longer as further exploration is done in untouched areas. With a new 30-foot trailer plus a helpful family, this should be a pleasant and profitable adventure.



## FOOD: WILDLIFE'S BASIC NEED

(Continued from page 9)

It is only through planting wildlife foods in the spring, at a time when very little thought is usually given to game food supply, that the landowner and the sportsman can be assured that there will be a continuous, unfailing food supply for game all through the year.

### Where to Plant

Wildlife foods may be planted in a variety of sites on the farm or in the woods. Such places as fallow borders or gullies, stream banks, woodland clearings, and out of the way waste places all make attractive wildlife habitats when proper food and cover are provided. We must not delude ourselves into thinking that unproductive land is of no value to wildlife. Such land can be made very valuable with a little special treatment. Of course it is very essential that food patches be planted near cover, for game must be able to escape from its enemies and seek shelter in protective vegetation. It is wiser to plant food and cover plants close together, and placed along edges of natural coverts which game is known to frequent.

Planting sites should be so chosen that they will attract certain species of game. Quail, for example, prefer narrow patches planted along fence rows, ditches, or woodland borders. Such patches are much more effective than the same area in blocks or squares.

Turkeys are attracted mostly to plantings made along the edges of small clearings deep in the woodland. The mourning dove is attracted to foods left standing in good sized blocks in fields. They dislike

feeding close to woodland edges. The Canada goose is another good example of a bird that likes to feed in the open fields. How often have you seen countless tracks of these wonderful waterfowl in the open wheat fields or stubble, only to gradually diminish and almost completely vanish as you approach the wooded fence lines and cover? Some game is very conscious of lurking danger in the woods, and so they prefer to feed in the open where the danger can be kept to a minimum.

Virginia landowners and sportsmen desiring to plant foods for wildlife would do well to contact the Division of Game, Commission of Game and Inland Fisheries, Richmond, Virginia, for information and literature on farm planting for wildlife, and methods of planting. A complete set of instructions on when, what, and how to plant is available upon request.

### What to Plant

The selection of the proper kinds of plants for wildlife will have an important bearing on the success of any planting program. A different variety of foods is sought by each species of game. Plantings for wild turkeys will not be the same as plantings for quail, or doves. Planting should be designed to correct the faults of an area in which they are made. One area or farm in one section might be lacking in a certain type of food, while this type of plant might be abundant in another section of the State.

The table on page nine should prove helpful to all those desiring to put in a little extra work for wildlife.



# CONSERVATIONGRAM

Late Wildlife News . . . At A Glance

**CONSTRUCTION** was recently started on two 13-acre lakes at the largemouth bass hatchery at Stevensville. The new lakes, which are scheduled for completion in April, will be used to hold additional brood stock. These additions will enable the hatchery to produce an estimated 10 or 15 thousand more adult bass each year for stocking the streams of Virginia.

**TROUT FISHERMEN** can take down their favorite fly rods and get them limbered up. G. W. Buller, Chief of the Fish Division, reports that a fine supply of fighting rainbow and brook trout have been put in Virginia's trout streams since February 1. Buller said that many of the fish were two and three years old and that they were all from 10 to 18 inches long. Incidentally, expectant Waltonians should make sure that there are no flaws in their trout rods. A two and a half or three pound trout puts up a good scrap.

**GAME ASSOCIATIONS** and individual sportsmen of Virginia can obtain a reasonable quantity of milo maize from the Game Commission for wildlife plantings. Milo is one of the best foods for quail, turkey and other game birds and animals. It is seeded at the rate of five pounds per acre if sown with a drill, or 15 pounds per acre if broadcast. Further instructions for plantings can be obtained from county game wardens, district game technicians, or the Division of Game.

Requests for seed should be sent to the Game Commission not later than March 15.

**BICOLOR LESPEDEZA** plants which were raised cooperatively by the Game Commission and Beaumont Industrial School are currently being distributed by district game technicians, county game wardens and soil conservation district personnel. Since the demand for bicolor plants often exceeds the supply those individuals desiring seedlings for next year would do well to place their order now with the above people.

**LEGAL DEER AND BEAR** kills in Virginia for this year's hunting season exceeded those for last year. During the 1948-1949 season, 5,220 deer were killed as compared to a total of 7,021 for the same period in 1949-1950. The bear kill did not show as much improvement. Hunters bagged 152 bruins last year and 157 this year.

Sussex County had the greatest increase in deer kills over the previous season: this year 702, last year 197; an increase of 505. This doesn't necessarily indicate a larger increase in deer in Sussex over other counties. Sussex County nimrods could shoot doe this year whereas they could not last season. Whereas Halifax hunters had the same bag restrictions both years, nevertheless 133 more animals were reported killed this season than last.

Bath and Augusta Counties ran a close race for top honors in bear kill increases over last year. Bath had 10 more animals bagged, while Augusta recorded nine.

**HUNTERS AND FISHERMEN** should note that the game wardens are on the job in the enforcement of game and fish laws. The January game warden activity report shows that during the month 13,187 hunting and fishing licenses were checked. This was in addition to 2,368 dog licenses inspected. There were 362 arrests with the following convictions resulting: dog law violations, 57; game, 275; fish, 21. Fines totaling \$3,566.55 were paid into the State literary fund.

**TAZEWELL COUNTY** provided more revenue in the last fiscal year for the wildlife restoration fund than any other county of Virginia. The county's gross revenue amounted to \$29,667.25, which came from hunting and fishing license sales, and 15 percent of dog license fees. Rockingham County ranked second with a total gross revenue of \$22,449. Wise County was third with \$22,005.

**THE VAUGHN WILDLIFE PRESERVE** in Halifax County will be used by the Game Commission for experimental work in deer and turkey management. Paul C. Edmunds, manager of the preserve, offered the area to the Commission for this purpose because of his great interest in wildlife conservation and development.





1. A Game Commission employee uses a tractor to uproot the vigorous plants in each row.

2. The boys follow along behind the tractor and finish the job.



3. These three youngsters find the tenacious roots plenty tough.



# Bicolor Time

Photos by

For the past several years the Beaumont Industries have been busy in raising bicolor lespedeza which was planted throughout the area. In the spring, seed are planted and by fall the plants are ready for harvest. In the winter, boys at the school harvest them. The plants are then "heeled in" and their tops clipped off. They are then "heeled in" by Game Commission personnel, Soil Conservation Service agents, and other interested parties who have filed requests for the plants.

4. A horse and wagon still come in handy to haul plants from the field to "heeling in" beds.



5. Eager crews unload plants at the "heeling in" sites. Wagons then return for another load.





# at Beaumont

W. F. Mullins

al School has cooperated with the Game Commission  
not the State for the improvement of wildlife habitat.  
are three or four feet high. On nice days during the  
at counted out into bunches of 50, tied into bundles  
until the following spring when Game Commission  
operating agencies distribute them to those farmers



6. The stacks often stretch for a hundred yards adjacent to the "heeling in" beds.

7. Prior to being "heeled in" plants are counted out into bundles of 50 and their tops clipped off.



8. Roots are covered to protect them from cold and drying.

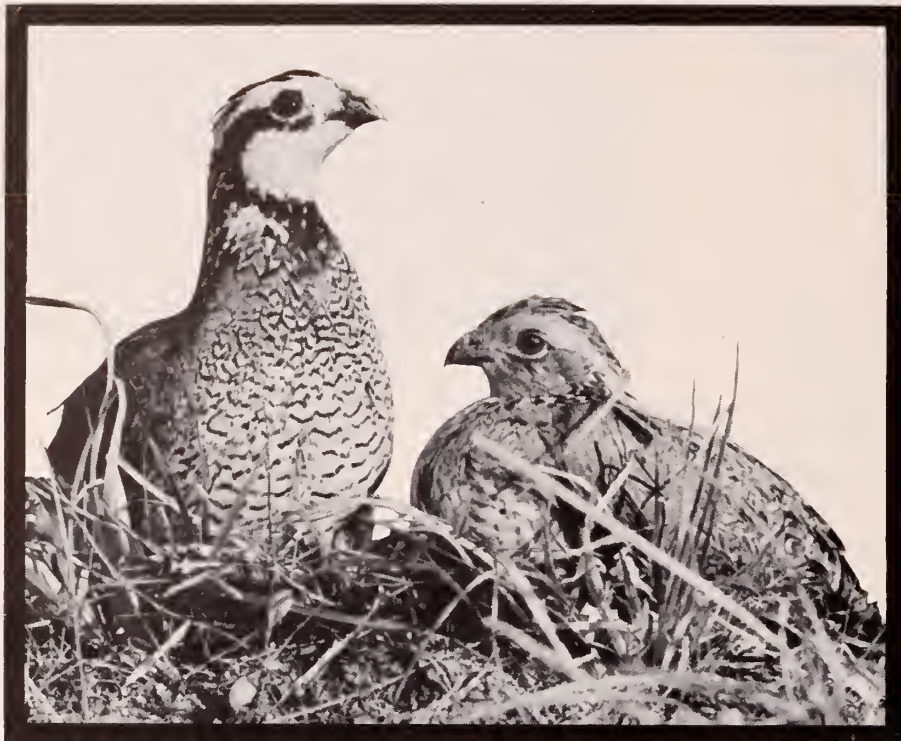
9. A part of the "heeling in" bed as it looks before plants are removed for spring planting.



10. Game warden delivers plants to an appreciative farmer.







Flournoy, VSCC

# More Quail?

## It's up to You!

By **WILLIAM P. BLACKWELL**  
*District Game Technician*

**T**HERE ARE SECTIONS of Virginia in which it is becoming progressively more difficult to find a place to hunt, due to the ever increasing number of farmers who are posting their lands. In some localities hunt clubs have leased large tracts of land for the exclusive use of their members, and unless a man belongs to one of these clubs, he may be hard pressed to find hunting grounds. To the majority of us, this increased amount of posting means that there are fewer and fewer places that we can hunt.

The cause of this posting of land may be attributed to a number of things, but probably one of the most important reasons is that farmers do not like to have hunters stop their cars in the public roads and hunt over their farms without asking permission. What would your reaction be if a carload of strangers drove up in front of your house in town, got out and began to prowling around your yard, through your shrubs, flower beds and vegetable garden, and all the while shot off fire crackers? I believe that your first reaction would be to either go out and give them a piece of your mind and tell them to get off your property at once, or else to call the police and have them thrown in jail for trespassing or disturbing the peace. To the farmer, unwanted hunters create the same reaction. On the other hand however, it has been my experience that on well over half of the posted farms permission to hunt will be given to hunters who first go to the house and ask for it. They must convince the farmer through their actions that they can and will conduct themselves like gentlemen.

All of us have read articles on farmer—sportsmen

relationships, and have seen do's and don't's for hunters, but I believe I have found a real method of creating a place to hunt for every hunter who is interested enough to help himself. Now it is easier, of course, for the hunter to gripe about the situation and do nothing, or go to the local sportsmen's club and discuss the situation, but again do little or nothing about it. However, if you are willing to take a little time and expend a little effort, you can assure yourself of a place to hunt and at the same time enjoy good shooting, with an adequate supply of game.

My plan is this: almost every city or town dweller knows someone in the country, but if he doesn't, such an acquaintance can be made easily. Go to see this man and explain to him that you like to get away from town during the hunting season, and do a little bird hunting, but you are having a hard time finding a place to hunt quail without going 25 to 50 miles from home. Usually at about this stage of the conversation the farmer will tell you that he would be glad to have you come out and hunt on his farm. This is the opening which you have been waiting for, but it is only the beginning. The next step is for you to suggest to the farmer that you help him to plant some food patches over different parts of the farm. When I say 'help', I mean just that, and I'm sure you'll be surprised at how much of an impression this will make on the average farmer. The farmer has the idea that the only thing a hunter thinks of is shooting, and that he forgets game for the rest of the year, depending on the farmer and Mother Nature to take care of all the rest. Anything from a sportsman



that deviates from this pattern is certainly a welcome surprise to him. Almost any farmer is willing to provide the land and the machinery necessary to prepare it for food patches if the hunter will be on hand to help in any way that he can. Let me mention here that offering to pay the farmer for putting in these food patches is not often entirely successful; however if you, the hunter, are there helping to do some of the work, you will find that you will always have a standing invitation to come and hunt.

Because of poor land use practices in the past, on many farms there are only one or two coveys of quail, and on others, none at all. It is possible on almost every farm of a hundred acres or more to have at least three coveys of birds merely by making provisions of food and cover for them. The best way to do this is first to walk over the land with the farmer and get a good overall picture of the land use. Where is the grazing land? Where is the crop land? Which are the hay fields? Are there any woodlots on the farm? Are these woodlots grazed? Is there an orchard? Is this grazed or disked? Are there any steep slopes, gullies, or galls near heavy cover? Are there any grown up fence rows or stream banks? These are things of importance to keep on the look out for. Food patches must be located next to heavy cover, and in areas that will not be grazed, burned, or cultivated. Woods borders, fence rows, odd corners, steep slopes, galls, gullies, and openings in the woods, all these places make suitable locations for food patches. For maximum use by quail, food patches should be located when possible on the southern slopes of hills, or on the southern exposures of woods since it is in these places that the snow will melt off first, and

quail will go to seek food in winter weather. Incidentally, your local Game Warden, your District Game Technician, and your Soil Conservationist are trained in habitat improvement work and are available in almost every county to help you with your plans for wildlife on the farm. These men will be glad to give you whatever help and advice you may need.

In selection for the locations for food patches an area of at least  $\frac{1}{8}$  acre should be used. Enough food can be grown on  $\frac{1}{8}$  acre to support a covey of quail throughout the winter. After you and the farmer have selected the locations for your food patches, the land should be plowed. Next, see your Game Warden and tell him how much land you have prepared for spring seeding. He is able to furnish you, free of charge, with seed or plants which have been tested and found to be favorite quail foods. He can furnish you either with annuals, which must be planted every year, or perennials which need to be planted only once and then will continue to grow and produce seed for years to come. The perennial plant now furnished by your Game Commission is Bicolor Lespedeza, which can be obtained as seed or in year old slips. The slips will bear seed a year sooner. Since it takes two years to get a good seed crop from Bicolor Lespedeza, it is suggested that you plant a patch of annuals and a patch of Bicolor at each location. By this method you will provide quail food the first year with annuals and years thereafter with Bicolor. This method will require  $\frac{1}{4}$  acre of land, or roughly a strip 30 feet wide and 400 feet long. Bicolor plants may be planted in the fall, winter, or spring, but both Bicolor seed and the annuals should be planted in the spring between May 1 and July 1.

(Continued on page 22)

**Want a place to hunt? Then visit the farmer and offer to help him plant wildlife food.**

**Make your promise good. An afternoon's work on your part will prove your genuine interest.**

Photos by J. J. Shomon





# Farm Ponds and Mosquitoes

By R. E. DORER \*



W. H. Mullins

**W**ANT TO BUILD A POND? Good idea—but be sure you have a suitable site, do it the right way, and give it proper management. All over rural Virginia more and more ponds are being constructed, some for irrigating crops, some for watering stock, and some for recreation. The Fish and Wildlife Service of the Department of Interior says that a farm pond one acre in size, properly fertilized and managed can supply one hundred fifty to four hundred fifty pounds of fish a year thereby adding fresh fish to the farm diet. Ponds may be desirable to control soil erosion, conserve ground water, or for better wildlife management. Any one of these reasons is sufficient to justify the construction of a farm pond. However, in most cases several benefits are derived. Yes, sir, it is a good idea to construct a pond.

But, before you start construction, there are many angles to be investigated. The selection of the pond site is the first consideration. There must be an adequate but not an excessive water supply, a pond bottom that will hold water, an economical dam site, and suitable material to build the dam. If you do not have a site that meets these fundamental requirements, you had better give up the idea of a pond. However, if that low area down in the pasture meets these conditions, then you have an ideal location for a pond; and the next step is to carefully plan construction. This is an engineering problem; and advice as to dam design, outlet, spillway, and reservoir preparation should be

sought from competent authorities. Your farm agent can, no doubt, direct you to the proper government agency for help.

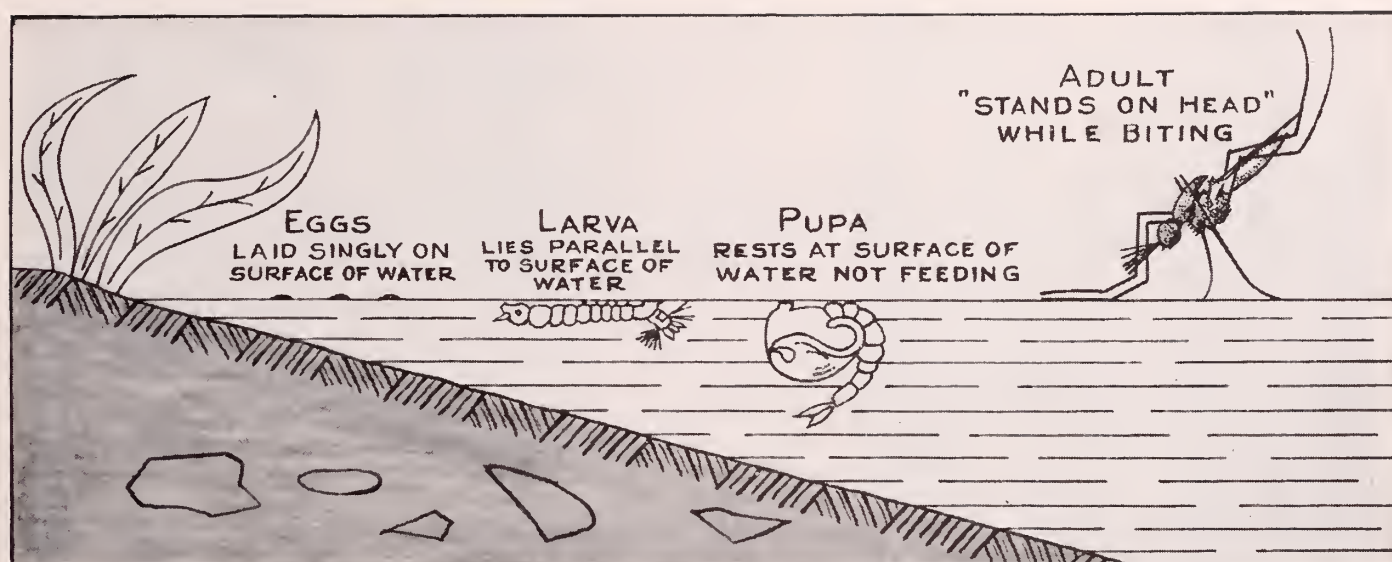
Reservoir preparation and outlet design are of prime consideration from a public health standpoint. Many records reveal malaria epidemics resulting from the creation of small ponds in communities previously malaria-free. The malaria potential may be considerable because of (1) proximity to population, (2) physical characteristics and uses that produce favorable conditions for malaria mosquito production, and (3) the limited choice of applicable control methods. Not only may an impoundment improperly prepared and maintained result in sickness to your family or your neighbors but may even result in lawsuits.

Rules and regulations for the protection of public health promulgated by the State Board of Health of Virginia provide that in those sections of the state where malaria is prevalent no person or corporation shall impound water without taking precautions to control the breeding of the malaria-carrying mosquito (*A. quadrimaculatus*) according to the principles laid down by the U. S. Public Health Service. The main section in these regulations is concerned with reservoir preparations and is quoted as follows:

“(b) In the area to be occupied by the reservoir, its branches and indentations, all brush, trees, undergrowth, logs and similar objects, which if not removed would float on the surface of the impounded water and thus constitute conditions favorable to the production of malaria mosquitoes, shall be removed, burned

\* Engineer in Charge, Bureau of Insect and Rodent Control,  
Virginia State Health Department





The various stages in the life cycle of the malaria-carrying mosquito (above) make it possible to control this pest by initiating corrective measures in your pond.

or otherwise disposed of prior to the closing of the dam and impounding of the water. All stumps of trees or underbrush shall be cut sufficiently near the surface of the ground to prevent their standing above the surface of the water at any and all stages of the water, and thus holding drift and floatage."

Water less than two feet in depth is of no value to a pond and is the area where weeds will grow and mosquitoes will breed. Such areas can be eliminated by excavation and using the material for fill thus establishing a sharp shoreline. By clearing and deepening the reservoir site, you will not only reduce the malaria hazard but you will increase the fish potential in the pond and will make maintenance of the pond a much easier task. There is no conflict between wildlife conservation and malaria control interests. In fact there are many features of water impoundage management that are of mutual benefit.

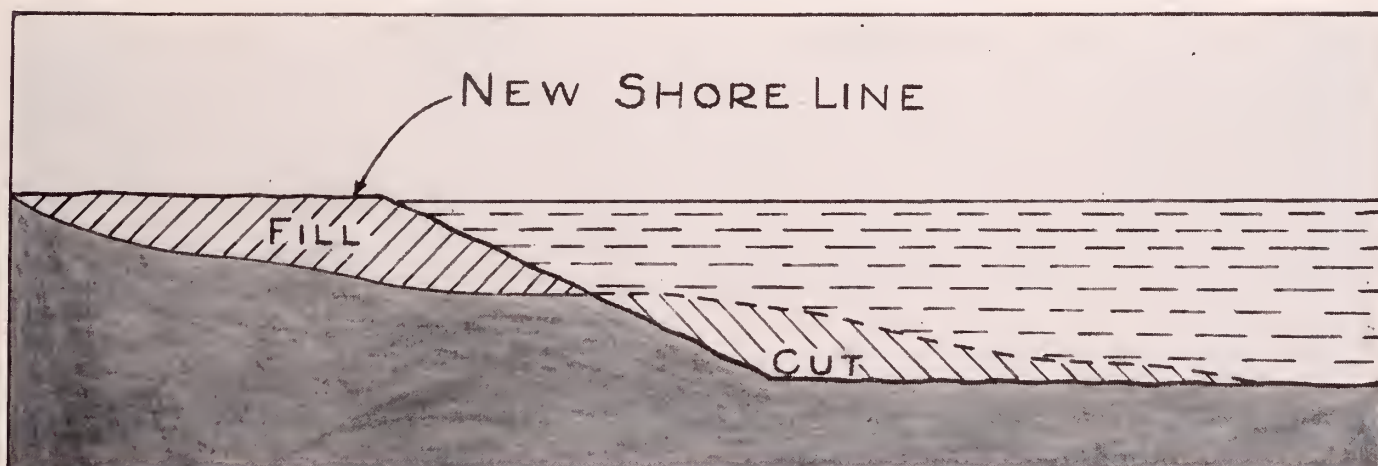
In larger ponds, provisions should be made to fluctuate the water levels. By holding back a surcharge of one or two feet of water during the winter,

up until the end of June, and then dropping the water level, the growth of marginal wetland plants will be limited and objectionable floatage will be stranded. By periodically raising and lowering the pool level at weekly or 10-day intervals, mosquito larvae can be stranded or exposed to natural predators.

Malaria mosquitoes are pond breeders. The female adults lay their eggs singly on the water surface in more or less shaded spots. In warm weather, the eggs soon hatch into small larvae. The larvae go through four molts before they obtain full size, which is about three-eighths of an inch long. They lie parallel to the surface feeding on tiny organisms. They move about by a rapid "S" motion but always on the surface, seldom, if ever, below the surface as other species of mosquito larvae. They look like small sticks floating on the surface, and any floatage or penetrating vegetation offers them protection. If the pond is clear, the larvae are easy prey to fish and other predators. In about a week or ten days, the larvae hatch into the pupae; and after twenty-four to forty-eight hours, the adult mosquitoes emerge.

(Continued on page 22)

For mosquito control and improved fish production a sharp shore line is desirable. The profile view below indicates cut and fill in shallow areas of the pond.



# Conservation in Literature

By MRS. EDDIE W. WILSON

WHILE THE TERM "CONSERVATION" is a relatively new one, the principle in its varying phases has appeared in literary work of the first order throughout ancient, medieval, and modern times. The sage, the poet, the naturalist, and the statesman have emphasized the intelligent care and use of natural resources. Each in his individualistic style has given heed to the need of protecting soil, water, and all forms of plant, animal, and bird life. In theory, usually accompanied by practice, each is in accord with the Chinese proverb, "Though you live near a forest, do not waste fire-wood" and the Scottish saying, "Frae saving comes having." And here it is interesting to note that these concepts of conservation in many instances meant more productive land.

As early as the first century preceding the birth of Christ, we find Virgil and Horace thinking about conservation.

Virgil, the great Latin poet, sprung from the class of yeoman, attempts to combine his poetic love of the land with science in his composition of "artistic perfection," the *Georgics*. He would have his countrymen conserve the soil through rotation of crops:

"See, too, that your arable lies fallow in due rotation,

And leave the idle field alone to recoup its strength."

Again:

... "by rotation of crops you lighten labour" ...

Finally:

"Be provident . . . . .

If you wish to remain worthy of the land and its heaven-sent honour."

Horace, the advocate of the simple life, the lover

of his "plot of ground, not too large, with a garden—a spring of living water, and a patch of woods," asked that he might keep these gifts "perpetually" and not "diminish it through my own fault or failing."

A century later, Columella, the Latin author of *Res Rustica*, that comprehensive treatise on agriculture, declares that "there is no doubt that an extensive field, not properly cultivated, brings in a smaller return than a little one tilled with exceeding care."

Then, in 1653, in England, Izaak Walton, the quaint sportsman who found angling the ideal "art and recreation," appears as a conservationist against the fishing practices of his day. In his *Compleat Angler* he deplored the "many nets and fish that are under the statute sold daily amongst us, and of which the conservators of the waters should be ashamed." Also, he added: "Above all, the taking of fish in spawning time may be said to be against nature; it is like taking the dam on the nest when she hatches her young."

Moreover, there was the versatile Voltaire—philosopher, dramatist, man of letters, industrialist, and farmer. This great Frenchman who called himself "only a peasant" held his agricultural interests next to

his passion for justice. As a country squire, in his old age, he was amazingly active in directing conservation-projects on his vast estate at Ferney. Here he reclaimed land by draining swamps, set out thousands of trees, and delighted in "making two blades of wheat grow where only one had grown before." As to his tree-planting, he said:

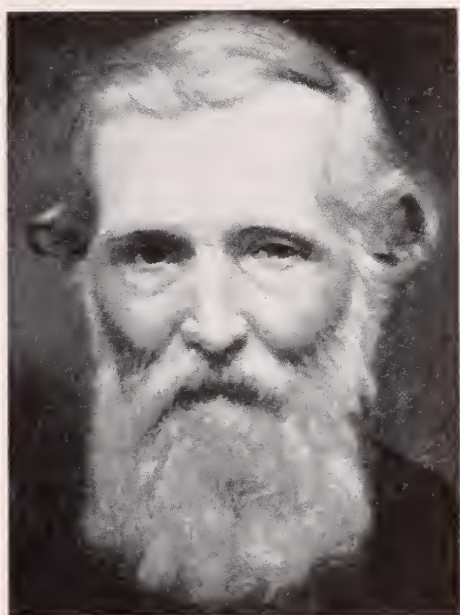
"Old and infirm as I am, I would plant today even if I were sure I would die tomorrow. Others would enjoy them."



R. Crawford

Conservation principles are found in ancient, medieval and modern literature.





Courtesy National Park Service

**John Muir**

*"Wilderness is a necessity."*

Voltaire's contemporaries in America, George Washington and Thomas Jefferson of Virginia, although not acquainted with the scientific reasons for diversified farming, were strongly in favor of its practice. Washington called this "a judicious succession of crops" whereas Jefferson said that "Repeated growing of tobacco and Indian corn had exhausting effects on the soil." Washington's diaries and Jefferson's garden books abound in such ideas together with the weighing of the virtues of certain plants along conservation lines. Jefferson, like Virgil, believed in letting land "rest," thus preventing erosion of the soil's going "off in gullies," as he expressed it. And quite like a climax to his agricultural policies he said: "He who can double his food deserves to rank next to his Creator."

Another who practiced conservation through diversified farming was Andrew Jackson. In 1844, he wrote against constant cotton growing:

"It is bad oeconomy not to raise corn enough. When you have no corn your hogs will go wild, and to raise cotton to buy corn and pork with is bad oeconomy."

But perhaps Henry David Thoreau was the first voice to "cry in the wilderness for the wilderness." The destruction of wild nature about him distressed him greatly and as a precursor in protecting natural life and beauty he cried: "We shall be reduced to gnaw the very crust of the earth for nutriment." Again: "Every creature is better alive than dead, men and moose and pine-trees, and he who understands it a-right will rather preserve its life than destroy it." He advocated natural preserves "in which the bear and panther, and some even of the hunter race, may still exist, and not be 'civilized off the face of the earth' . . . our forests . . . for inspiration and our true recreation." In fact Thoreau was so concerned over wild plant and



Underwood and Underwood Studios

**Theodore Roosevelt**

*"Natural resources must not be impaired in value."*

animal life that he murmured when he saw the cultivation of a new field.

Closely following Thoreau came the rugged John Muir whose speeches and writing were the great influences in the setting aside of the national parks. According to Muir:

"Wilderness is a necessity. Mountain peaks and reservations are useful, not only as fountains of timber and irrigating rivers, but as *Fountains of Life!*" He thought of a national park both from a material standpoint and as a place of conservation of man, "a place of rest, a refuge from the roar and dust and weary, nervous, wasting work." Here: "Your animal fellow beings, so seldom regarded in civilization, and every rock-brow and mountain, stream, and lake, and every plant soon come to be regarded as brothers; even one learns to like the storms and clouds and tireless winds."

In complete sympathy with Muir's national parks movement was Theodore Roosevelt, the conservation president of the United States. The official acts of this far-seeing man together with his numerous speeches resulted in a new concept of natural resources by both the citizens and the government. He framed legislation for the preservation of these and organized departments to carry out this legislation. He held that: "The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired in value." His State Papers as President emphasize this pertinent fact.

Yes, the student of Conservation from a literary standpoint can add numerous other quotations to the foregoing. Dominant minds of many ages have been deeply concerned with the subject.

## FARM PONDS AND MOSQUITOES

(Continued from page 19)

The malaria mosquito herself is of no danger unless she obtains blood from some person who has malaria parasites in his blood. But, after she has had such a blood meal and the parasite has had time to develop in her, she becomes a living hypodermic needle capable of making all whom she may bite sick with chills and fever. So, it can be seen that no one wishes to create an incubator for such unwelcome guests especially in his own backyard.

Even after a pond has been constructed according to the best principles, it must receive a certain amount of maintenance. The better the original construction, the less maintenance will be required. A pond kept free of aquatic plants will look better, have better fish population, and will not be a producer of malaria mosquitoes.

Submerged weeds can best be controlled by fertilizing. This produces millions of microscopic plants and animals in the water which gives the water a cloudy look. It is this cloudiness in the water that shades out the submerged plants and has the added advantage of encouraging the growth of fish. Sodium arsenate

is a dangerous poison but when used at the rate of three to seven PPM it is safe and effective against most submerged rooted or vascular plants. Precautions should be used in properly handling this material.

Copper sulfate is effective in controlling algae and should be used at the rate of one-half to one and one-half PPM. Higher dilutions may kill fish or other animals. A spray of 24-D may be used effectively against broad-leaved plants that penetrate the surface of the pond. This material is safe to the user but care should be exercised in applying because if any 24-D should drift on to an adjoining cultivated field with a broad-leaved crop it may do considerable damage.

Plants, such as lilies or cattails, that penetrate the surface may be controlled by manual removal. They should be pulled out as soon as they appear and before they are allowed to obtain a good foot-hold. Weeds in a pond are like weeds in your garden. They grow back and you must continually keep after them.

If your pond is let go and aquatic plants begin to appear, followed by the production of mosquitoes, it will be necessary to dust the pond with paris green or spray it with oil to kill the embryonic mosquitoes. This costs money, is a complex job, and is a sure sign that your pond project has been a failure.

## MORE QUAIL? IT'S UP TO YOU

(Continued from page 17)

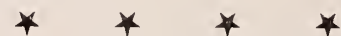
When you take an active part in planting these food strips, it is safe to assume that you will pay several visits to the farm during the summer to see how they are growing. This also helps to convince the farmer that you are interested in providing for game as well as in shooting it during the open season. You will also have an ideal place to go between September 15 and the opening of hunting season to work your bird dog, and locate the coveys before the season opens.

In many cases farmers have been able to have a covey of quail for each food patch which they plant. This may not be possible in one year, but in several years there will be a noticeable increase in the quail population. Planting food for quail involves the same principles as treating a pasture with lime and fertilizer to improve the grass and thus increase the carrying capacity of that pasture for livestock. Every farm has a carrying capacity for quail, and in almost all places it can be increased by the addition of food and cover. The food plants discussed above will hold seed above snow, and provide quail with food during the most critical part of the year.

In the latest figures on over winter survival of quail in Southwest Virginia, we are told that between September 1 and April 1 from 33 percent to 82 percent of the quail die, are killed by predators, or move to

better ranges away from the farm studied. An average of five years in which this record has been kept showed that 55 percent of the quail were lost by natural causes during the winter. In areas with ample food this over winter loss can be greatly reduced.

By helping one or more farmers to plant food patches, you can assure yourself of a place to hunt and an ample supply of game. This is within the financial reach of every hunter. All it will cost you is several afternoons of work which may even prove to be very enjoyable. You can have good quail shooting within five miles of town if you will invest a few hours of your time in it.



### COMING NEXT MONTH

#### THE DEFENSE OF FOREST RECREATION AREAS

By OLAUS J. MURIE

*Director, the Wilderness Society*

#### THIRTY TERRIBLE YEARS

By ELMER V. RICHARDS

*District Game Technician*





# Field Force Notes

## **Tri-County Fish and Theft Case Broken**

E. T. Rasnic, Game Warden of Lee County, with the assistance of local authorities have brought to justice four fish dynamiters who were also charged with theft in two other counties adjoining Lee County.

According to Warden Rasnic, he received a call about 8 p.m. from an anonymous person who said excitedly, "They're blowing the river dry here at Olinger." Rasnic strapped on his gun, grabbed a flashlight, jumped in his car and raced into Pennington Gap where he picked up the Chief of Police. Ten minutes later he and the Chief pulled into Olinger, 13 miles away, where they were met by three citizens with shotguns who had come to assist the officers.

Upon arriving at Powell River the law enforcement "team" found the dynamiters' car. Three men stayed at the car while "Horse" Slem and Rasnic crept down the river bank. One man was caught on the bank immediately and a boat was spotted coming towards shore. They waited until the craft reached the bank then "jumped" its occupant.

The two men, Floyd Jackson and his son Clarence Jackson, had in their possession a pint of gin, hunting knife, four pocket knives, three flashlights, two dynamiting caps, 40 feet of rubber insulated electric wire, a flashlight battery, and three grain sacks. They gave the names of two others, Sam Bostic and Clarence Delph, who were "in on the deal" too but had made their getaway.

The Chief and Warden Rasnic took the two apprehended men to jail in Jonesville whereupon they received word that Henderson Reasor, one of the citizens who had assisted in the arrest, had picked up Bostic and Delph on the highway and that he was bringing them to Big Stone Gap. The police there were alerted to hold the two men.

At their trial all the violators pleaded guilty and were fined \$200 each plus court costs. Bostic appealed his case but later paid \$90.

The arrests of these men broke up a Tri-County theft ring. Most of their equipment had been stolen from stores and individuals. They faced robbery and housebreaking charges in Scott County. Warden Rasnic expressed his appreciation to the citizens of Olinger for their assistance in apprehending these lawbreakers.

## **Thornton Assumes Duties As Assistant Chief of Game Division**

James E. Thornton of Deerfield, Virginia is now in the Richmond office at his new post as Assistant Chief of the Game Division. He will be associated with all of the Game Division's work including the Pittman-Robertson projects throughout the State.

Mr. Thornton was born in Hampton, Virginia, reared in Elizabeth City County, and received his B.S. in Forestry from North Carolina State and M.S. in Wildlife Conservation from V. P. I. He had two and a half years' experience with the U. S. Forest Service and Soil Conservation Service before starting with the Game Commission in 1940 as district game technician.

He served as an Infantry officer in World War II and attained the rank of major. After the war Thornton resumed his duties as district game technician with the Commission and prior to his new appointment he served as leader for the Forest Game Habitat Improvement Project on the George Washington National Forest.



**James E. Thornton, Assistant Chief of Game Division**

The Game Division is fortunate to have a man like Thornton with proven abilities to help head up the accelerated program of game management in Virginia.

## **Rosebery Joins Fish Division Staff**

Dean A. Rosebery has recently joined the Fish Division staff and is serving as Assistant Chief of this Division. Mr. Rosebery, whose home is in Novinger.





Dean A. Rosebery, Assistant Chief of Fish Division.

Missouri, will assist G. W. Buller in the present program of building and managing public fishing waters.

The new Assistant Chief of the Fish Division has had extensive education in the aquatic field. He acquired his undergraduate work at the Northeastern Missouri State Teachers College, and prior to the war attended the graduate school at V. P. I. where he majored in aquatic biology.

During the war Rosebery served as gunnery officer on a destroyer escort in the northern Atlantic. Following the war he began his work at V. P. I. towards a

doctorate degree in aquatic zoology. He instructed in biology and served as leader of the recent Claytor Lake Fish Survey. His official doctorate degree is scheduled for completion this year.

One of his duties will be that of establishing a fisheries biology laboratory. He will also operate a planned mobile unit which is to be secured for making field studies on streams and lakes. All in all the Commission feels that Rosebery will be a tremendous asset to Mr. Buller and to the Fish Division's work.

### **Buck or Doe—Which?**

Two deer hunters, Chuck Stephens and William Stimpson of Bent Creek, Virginia had deputy game warden Malcolm Booker guessing for a few minutes when they drove up to the checking station in Buckingham County during the latter part of the deer season with two huge "bucks" without antlers.

In short order, however, they produced two racks of 10 and 12 points to go with the 157 and 180 pound deer. The hunters said that when they shot the bucks their antlers came off when the animals hit the ground. Then the dead deer looked just like does except for their size and two little spots where the antlers had fallen off.

Authorities of the Game Commission stated that it is rather unusual for deer to lose their antlers in late December. This usually occurs a month or so later.

### **BACK BAY—IMPORTANT LINK IN WATERFOWL REFUGE SYSTEM**

(Continued from page 7)

with the facts it might appear that the general condition and unhealthy appearance of the birds were due to a lack of food. Examinations of specimens and field studies conducted over several past seasons have shown that many of these "summer boarders" are suffering from lead poisoning. Others were injured during the hunting season, and many are young birds, normal, in every way, which, for some unexplained reason, failed to migrate north. This same condition prevails in other localities, but, because of the inaccessibility of the areas, the birds haven't attracted the attention of the public.

The dying off of geese during the late winter months in various areas along the Atlantic coast is a phenomenon that has occurred from time to time since man was first here to observe it. Last year several hundred geese died from an unknown cause. One thing is certain, the birds didn't die from starvation. A lack of essential vitamins could possibly precipitate

the onset of various diseases. For this reason, we are experimenting with plantings that provide additional greens for the birds. Experiments with supplemental feedings of corn have also been tried.

Many of the sick geese have been recovered before death. They were in an emaciated, flightless condition, and were studied in pens by government biologists. The birds refused to take supplemental foods like corn when offered. Many of the geese were heavily infested with lice. There is a possibility that leucocytozoon was a factor, though a great deal more information is needed on the occurrence of the blood parasite—particularly on the breeding grounds. There is a possibility that coccidiosis is a factor. Here again is another example of needed research which we hope to undertake.

When everything is summed up, it is clearly seen that Back Bay and Pea Island are important in maintaining populations of waterfowl. The presence of these refuges, plus their scientific management, greatly increases the hunting potential of the whole flyway—but especially of the Virginia and North Carolina area.





## SPORT FISHING INSTITUTE FORMED

Of general interest to sportsmen throughout the Nation should be the news that sport fishing will now have an organized association in Washington, D. C. A group of prominent fishing tackle manufacturers decided that something should be done to promote and assist in the conservation development and wise utilization of our national recreational facilities' resources, and to assist all existing agencies in the training of personnel in fisheries, and in a wider participation in sport fishing.

The organization is called the "Sport Fishing Institute" and was incorporated in the District of Columbia with headquarters in the Bond Building, Washington, D. C.

The initial meeting of the Institute was recently held in New York City, and the following officers were elected: President, A. R. Benson, East Berlin, Connecticut; Vice Presidents, Henry Shakespeare, Kalamazoo, Michigan; R. H. Balch, Utica, New York; and Graham Treadway, Bristol, Connecticut. John M. Holmes, Washington, D. C., was appointed Secretary-Treasurer.

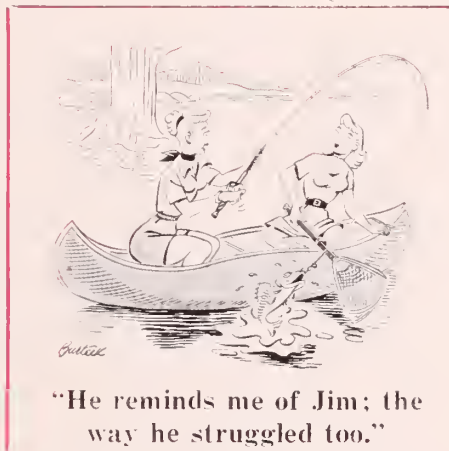
## WALTONIANS MEET IN RICHMOND

The Board of Directors of the Virginia Division, Izaak Walton League of America, met in Richmond on January 9 and transacted the following important business:

- (1) Adopted a resolution from the Norfolk Chapter calling for a complete reorganization of the Fisheries Commission, along the lines of the Commission of Game and Inland Fisheries. The pro-

posal was to be submitted to the Governor and to the General Assembly.

- (2) A regulation proposed by Frank Minter, of the Roanoke Chapter, was adopted, requesting the Governor to proclaim a conservation week this spring.
- (3) The directors named Mr. Lyman Carrier, of Blacksburg, formerly



State Conservationist for the Soil Conservation Service, as its conservation consultant for the Division.

- (4) The directors voted to ask each Chapter to raise funds within the Chapter to the extent of 25¢ per member, to finance the Division's \$500 pledge to the State Conservation Essay Contest. President Harnsberger requests that each Chapter not only raise this fund as soon as possible, but that special Essay Contest committees be appointed in each Chapter, and that these work for extensive participation of the public schools in the contest.
- (5) A committee was appointed to select a panel of judges to determine the winner of the \$100 prize for wildlife management

and research, the prize to be awarded this year. A committee to study and revise the Division's objectives was also appointed.

- (6) A highlight of the Richmond meeting was the awarding of a gold past-president's button to Francis Loth by National Director Paul Peters, after Mr. Loth had presented a proposal concerning the James River dam project, which was adopted by the directors.
- (7) The directors discussed the proposals made in a memorandum from Mr. I. T. Quinn of the Game Commission concerning likely legislative action at the present session of the Virginia Assembly, and made clear that they favored no present changes either in present license fees or in the organizational set-up of the Commission of Game and Inland Fisheries.

## WATER CONSERVATION TO BE STRESSED AT CONFERENCE

A vital western problem, the conservation and administration of water, will be analyzed thoroughly from several different viewpoints at the forthcoming 15th North American Wildlife Conference which will be held March 6, 7, and 8 in San Francisco.

Major General Lewis A. Pick, chief of engineers, Department of the Army, will discuss valley development from the standpoint of the engineer. The Honorable Leslie A. Miller, chairman of the Natural Resources Committee of the Hoover Commission, will speak on the relationship of dams and valley developments in relation to other natural resources.





for  
Students  
Teachers  
Parents

## Lesson No. 1

### WHAT IS CONSERVATION?

Conservation is the science of getting the greatest possible returns from all of our natural resources without depleting the supply of source materials. In other words, we here in America must manage our soil, minerals, forests, water, and wildlife so that we will always get the most good from them.

It is plain to all of us that the definition of conservation means a great deal. If each one of these natural resources is to be managed properly then a lot of study, understanding, and work is going to have to be done by someone. That someone means YOU, every man, woman and youngster in this great country of ours. It is the joint responsibility of every citizen interested in the well being of this and future generations to help conserve and increase these gifts of Nature.

History shows us in no uncertain terms that the rise and fall of nations depended upon their supply of natural resources. When these gave out the once prosperous nations gradually died. We must not let our America go down that same road of desolation, poverty and despair.

How can you get into this fight for conservation? Whether you are a youngster, teacher, parent, or just Mr. Average American the first step is to earnestly try to learn all the basic things about our natural resources and how they can be managed properly. This will give you the foundation on which to build your thoughts and work.

Don't miss next month's lesson number two. It will be another stepping stone leading you to a better understanding of our inherited natural resources, upon which your future and your children's future depend.

### ESSAY CONTEST ENDS

For several weeks prior to the closing date of February 28 for entries in the Third Annual Wildlife Essay Contest, essays from schools all over the State poured into contest headquarters here at the Game Commission. We are proud of the fact that so many youngsters want to study and write about this great natural heritage. It is our sincere belief that these youngsters who learn about conservation today will grow into citizens tomorrow who will really work together in preserving and improving our native land.

The papers are being processed and judged by noteworthy Virginians who are sincere and competent conservationists. They will take each essay in every grade level and compare it with other essays in that same grade. Those judged as having sound thoughts presented in a neat and logical manner will more than likely win one of the big cash prizes which total \$960. The school turning in a large number of essays in proportion to its total enrollment has a good chance of winning the \$40 school prize.

Winners will be announced in a few weeks.

### Bird of the Month

#### CARDINAL

That flash of red flitting in and out among the tree branches will more than likely be a cardinal, the official state bird of Virginia. And as the vermilion-scarlet little bird goes cheerfully and energetically about its duties there seems to be no doubt that it is proud of the title.

The cardinal or redbird, as it is commonly called, is extremely loyal in that it stays in Virginia even through the winter. With the first warm days of early spring the rich voices of both male and female cardinals signal the sleeping buds

and flowers of the time for awakening. The long but melodious whistles of the male are in keeping with his scarlet feathers garnished with a black mask on face and throat. A stout bill and crest complete his costume.

The female's song is softer than her mate's, and even though her olive-grayish hue is not as spectacular she commands his complete admiration. During nesting time when she is sitting on her nest containing two to four greenish or bluish-white speckled eggs the male is most attentive. He feeds her and is constantly singing while she is on the nest, then for three weeks he takes complete charge of the nestlings while his mate lays and broods a second set of eggs.

Although the cardinal is particularly fond of wild fruit, it eats many insect pests. Yes, to be envied is the gardener who has a cardinal for an assistant. In addition, "Mr. Redcoat" consumes a great many seeds of injurious weeds. Thus its food habits entitle the bird to our esteem, as its brilliant coat and spirited song compel our admiration.

### CLASSROOM SUGGESTIONS

As a student or teacher interested in conservation you should by all means stay in contact with the National Wildlife Federation, 1129 Vermont Avenue, N.W., Washington 5, D. C. This organization has excellent reference material on conservation and related subjects.

Here are two of their publications which every classroom should have available for students: *Poverty or Conservation Your National Problem*, by Jay N. "Ding" Darling. Single copies 25 cents each; ten or more copies 10 cents each. *The Foundations of Conservation Education*, a series of articles by competent authorities. In heavy paper cover, 60 cents. In library buckram, one dollar.



# Wildlife Restoration Week

MARCH 19 - 25

to be observed by . . .

**OUTDOOR CLUBS**

**YOUTH GROUPS**

**CIVIC BODIES**

**LANDOWNERS**

**SPORTSMEN**



COMMONWEALTH OF VIRGINIA  
GOVERNOR'S OFFICE  
RICHMOND

JOHN S. BATTLE  
GOVERNOR

## WILDLIFE RESTORATION WEEK

Since the beginning of the Commonwealth at Jamestown, our abundant outdoor wealth has played a significant and deciding role in the economic, social, and cultural life of all Virginians. Our basic renewable natural resources—soil, water, forests and wildlife—have through intelligent and careful husbandry provided us with health, happiness, and a long-lasting and growing independence.

As springtime approaches, we are reminded again of the glories of nature and of all the living things that make the outdoors what it is. Our wildlife in particular enjoys a new freshness, a new life to begin all over again the processes of a promising existence.

Our wildlife is endangered, however, at every turn, and we must forever be on guard against the forces of destruction which would dissipate it. As Governor of Virginia, therefore, I urge every citizen in the Commonwealth to take an active part in conservation work aimed at the restoration of this great and wonderful heritage. I am pleased to announce the week of March 19 to 25, inclusive, as Wildlife Restoration Week in Virginia, and strongly urge that these days be observed by providing suitable food and cover and living places for our wildlife.

Sportsmen, organized outdoor clubs, civic bodies, landowners, youth groups—all—can particularly unite their efforts aimed at wildlife rehabilitation. School officials and teachers, and their pupils, can profit immeasurably by devoting some of their time to the study of wildlife conservation. This Wildlife Restoration Week is set aside in conjunction with the National Wildlife Restoration Week which was first proclaimed by the President of the United States in 1938.

*John S. Battle*  
JOHN S. BATTLE, Governor.


## Suggested Projects

Make wildlife food plantings  
Conduct classroom forums  
Prepare displays


Buy wildlife poster stamps  
Plan group meetings  
Talk conservation

Further SUGGESTIONS and INFORMATION will be provided by the EDUCATION DIVISION,  
Commission of Game and Inland Fisheries, Box 1642, Richmond 13, Virginia.





YOUNG OTTERS ARE EASILY  
TAMED AND MAKE GOOD PETS



THEIR FAVORITE GAME IS  
SLIDING ON THEIR BELLIES  
DOWN A BANK INTO WATER



# OTTER



OF ALL MEMBERS OF THE  
WEASEL FAMILY, THE OTTER  
IS MOST ADDICTED TO WATER



OTTERS DO NOT BUILD  
HOUSES BUT DIG THEIR  
DENS IN STREAM BANK